Communications on

PURE AND APPLIED MATHEMATICS

Contents of Volume LVI, Nos. 1–12, 2003

NUMBER 1, JANUARY

Hamiltonian Structure and Statistically Relevant Conserved Quantities for the Truncated Burgers-Hopf Equation
R. V. Abramov, G. Kovačič, and A. J. Majda 1

The Segment Projection Method for Interface Tracking
A.-K. Tornberg and B. Engquist 47

Multiscale Homogenization with Bounded Ratios and Anomalous Slow Diffusion
G. Ben Arous and H. Owhadi 80

On Schrödinger Maps
A. Nahmod, A. Stefanov, and K. Uhlenbeck 114

NUMBER 2, FEBRUARY

Well-Posedness for the Linearized Motion of an Incompressible Liquid with Free Surface Boundary
H. Lindblad 153

Global Well-Posedness and Finite-Dimensional Global Attractor for a 3-D Planetary Geostrophic Viscous Model
C. Cao and E. S. Titi 198

Extracting Macroscopic Stochastic Dynamics: Model Problems
W. Huisinga, C. Schütte, and A. M. Stuart 234

Nonstationary Weak Limit of a Stationary Harmonic Map Sequence
W. Ding, J. Li, and W. Li 270

$C^{1,1}$ Regularity in Semilinear Elliptic Problems
H. Shahgholian 278

NUMBER 3, MARCH

Complete, Embedded, Minimal n-Dimensional Submanifolds in $\mathbb{C}^n$
C. Arezzo and F. Pacard 283

The Calderón Problem for Conormal Potentials I: Global Uniqueness and Reconstruction
A. Greenleaf, M. Lassas, and G. Uhlmann 328

Analyticity and Nonexistence of Classical Steady Hele-Shaw Fingers
S. Tanveer and X. Xie 353

Critical Exponents for Semilinear Equations of Mixed Elliptic-Hyperbolic and Degenerate Types
D. Lupo and K. R. Payne 403

NUMBER 4, APRIL

Linearity of Homogeneous Order-One Solutions to Elliptic Equations in Dimension Three
Q. Han, N. Nadirashvili, and Y. Yuan 425

Double Scaling Limit in the Random Matrix Model: The Riemann-Hilbert Approach
P. Bleher and A. Its 433

Long-Time Asymptotics of Moving Boundary Problems Using an Ehrenpreis-Type Representation and Its Riemann-Hilbert Nonlinearization
A. S. Fokas and P. F. Schultz 517

NUMBER 5, MAY

An Extension to a Theorem of Jörgens, Calabi, and Pogorelov
L. Caffarelli and Y.Y. Li 549

Attractors of Reaction-Diffusion Systems in Unbounded Domains and Their Spatial Complexity
S. V. Zelik 584

Fredholm Determinants and the Camassa-Holm Hierarchy
H. P. McKean 638

NUMBER 6, JUNE

A Viscosity Property of Minimizing Micromagnetic Configurations
L. Ambrosio, M. Lecumberry, and T. Rivière 681

The Boundary Trace and Generalized Boundary Value Problem for Semilinear Elliptic Equations with Coercive Absorption
M. Marcus and L. Véron 689

Exact Controllability for the Magnetohydrodynamic Equations
V. Barbu, T. Havârneanu, C. Popa, and S. S. Sritharan 732

Locating the Peaks of Solutions via the Maximum Principle II: A Local Version of the Method of Moving Planes
C.-S. Lin and J. Wei 784

Number 7, July

Equivariant Wave Maps in Two Space Dimensions
M. Struwe 815

Quadrics and Complete Integrability in Contact Geometry
S. M. Webster 824

Approximating L^2-Invariants and the Atiyah Conjecture
J. Dodziuk, P. Linnell, V. Mathai, T. Schick, and S. Yates 839

Mass Equidistribution for Hecke Eigenforms
W. Luo and P. Sarnak 874

Estimates for Elliptic Systems from Composite Material
Y. Li and L. Nirenberg 892

Plateau's Problem for Parametric Double Integrals:
I. Existence and Regularity in the Interior
S. Hildebrandt and H. von der Mosel 926

Topological Charge of the Real Periodic Finite-Gap Sine-Gordon Solutions
P. G. Grinevich and S. P. Novikov 956

Stable Systolic Inequalities and Cohomology Products
V. Bangert and M. Katz 979

The Liouville Correspondence between the Korteweg–de Vries
and the Camassa-Holm Hierarchies
H. P. McKean 998

Statistical $(3x+1)$ Problem
Ya. G. Sinai 1016

Number 8, August

Long-Time Asymptotics for Solutions of the NLS Equation with Initial Data
in a Weighted Sobolev Space
P. Deift and X. Zhou 1029

Mixed States for an Allen-Cahn Type Equation
P. H. Rabinowitz and E. Stredulinsky 1078

The Inequality of Moser and Trudinger and Applications to Conformal Geometry
S.-Y. A. Chang and P. C. Yang 1135

A Variational Approach to the Explicit Formula
E. Bombieri 1151

On a Problem by Arnold on Periodic Motions in Magnetic Fields
M. Levi 1165

Total Disconnectedness of the Quotient Aubry Set in Low Dimensions
J. N. Mather 1178

Invariant Measures on G/Γ for Split Simple Lie Groups G
M. Einsiedler and A. Katok 1184

Large Deviations for Random Walks in a Random Environment
S. R. S. Varadhan 1222

NUMBER 9, SEPTEMBER

On Unique Continuation for Nonlinear Schrödinger Equations
C. E. Kenig, G. Ponce, and L. Vega 1247

From the Boltzmann Equation to the Stokes-Fourier System in a Bounded Domain
N. Masmoudi and L. Saint-Raymond 1263

Quantifying Curvelike Structures of Measures by Using L_2 Jones Quantities
G. Lerman 1294

An Inverse Problem for the Dynamical Lamé System with Two Sets of Boundary Data
O. Imanuvilov, V. Isakov, and M. Yamamoto 1366

NUMBER 10, OCTOBER

Topology of Sobolev Mappings III
F. Hang and F. Lin 1383

On Some Conformally Invariant Fully Nonlinear Equations
A. Li and Y.Y. Li 1416

Existence and Convergence for Quasi-Static Evolution in Brittle Fracture
G. A. Francfort and C. J. Larsen 1465

Correctors for the Homogenization of Hamilton-Jacobi Equations in the Stationary Ergodic Setting
P.-L. Lions and P. E. Souganidis 1501

NUMBER 11, NOVEMBER

The Scattering Support
S. Kusiak and J. Sylvester 1525

Upper Bound on the Coarsening Rate for an Epitaxial Growth Model
R. V. Kohn and X. Yan 1549

Purely Nonlinear Instability of Standing Waves with Minimal Energy
A. Comech and D. Pelinovsky 1565

One-Bit Sigma-Delta Quantization with Exponential Accuracy
C. S. Güntürk 1608

Gauged Harmonic Maps, Born-Infeld Electromagnetism, and Magnetic Vortices
F. Lin and Y. Yang 1631

NUMBER 12, DECEMBER

Topological Degree for a Mean Field Equation on Riemann Surfaces
C.-C. Chen and C.-S. Lin 1667

Riesz Transform and Related Inequalities on Noncompact Riemannian Manifolds
T. Coulhon and X. T. Duong 1728

Nontopological N-Vortex Condensates for the Self-Dual Chern-Simons Theory
M. Nolasco 1752

Fronts in Reactive Convection: Bounds, Stability, and Instability
P. Constantin, A. Kiselev, and L. Ryzhik 1781

Author Index 1805

Volume Contents 1